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1 distribution of the data and I said I find it highly unlikely
2 that there is someone far out on that distribution data that
3 gets exposed to the highest level all the time.

4 Now if they are, some people don't converge entirely
5 to the mean. If there are a few exceptions it's not going to
6 change this analysis.

7 Q Can you cite to me any literature for the proposition that
8 there is convergence to the individual cumulative exposure --
9 excuse me, can you cite to me any literature supporting the
10 proposition or containing any data supporting the proposition
11 that there is convergence of individual cumulative exposures to
12 the overall mean for any occupational groups who have been
13 studied for asbestos exposure?

14 MR. BERNICK: That again is now -- so it's specific
15 to asbestos and its research demonstrating that with respect to
16 an asbestos group there is convergence on the mean?

17 MR. MULLADY: Yes, that's what I'm asking.

18 Q If you can cite to me any literature that would support
19 the proposition that there is convergence to the average over
20 time?

21 A I can cite certainly literature for any containment over
22 time that has supported, and I already have, that has supported
23 the concept that over time when you are trying to measure what
24 the exposure is to a job, any job, whether it's these jobs or
25 other jobs that it is the approved scientific method over time

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1 to observe over a long enough period of time. And this has
2 been observed that the variables cancel and in fact you can
3 define that over a long enough period of time that the mean
4 concentration is the most acceptable way to define a
5 concentration for that job category.

6 Q Okay. We talked about how each PIQ has different jobs
7 included within -- each PIQ category has different jobs
8 included within that category. You have agreed with that,
9 correct?

10 A Some of them, yes, do.

11 Q And each job has a TWA exposure associated with it. Would
12 you agree with that?

13 A Not necessarily because they were in these areas. Like
14 the Category B when someone is cutting to put in an electric
15 wire or cutting to put in a piece of plumbing equipment, it's
16 not as if they are highly variable jobs. The data that we have
17 is Peter Lees domain to characterize those exposures for that
18 entire job category.

19 Q Right. I understand why over time workers in a job, doing
20 a job, a specific job, will have their exposures converge to
21 the mean for that job. But what I don't understand is how over
22 time workers' exposures in a category will converge to the
23 average of that category. Can you explain that?

24 A Because workers who are -- the nature of exposure
25 categories are of like activities.

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1 Q They are of like activities?

2 A That's right. And the Category D with the person at the
3 site, they can be doing different things but if they are the
4 same distance from the activity they are going to experience
5 the same exposures. Likewise, someone in the space. If they
6 are in the space they are going to experience like exposures
7 from the activities that are going on in the space even though
8 they may be doing a variety of different things.

9 So these categories are designed to capture like
10 exposures. That's why they are nature of exposure categories.

11 Q Are you aware that the data that Dr. Lees provided you
12 show that for sprayers and helpers within the same job
13 category, there was a factor of three to six fold difference in
14 exposure in the samples that he provided to you? Are you aware
15 of that?

16 A I'm not sure what -- you are speaking of variability in
17 his data. Is that what you are speaking of?

18 Q I'm speaking of TWA exposure measurements for sprayers and
19 helpers in the same job category where the exposure values for
20 sprayers were three to six times higher than exposure values
21 for helpers. Are you aware of that data?

22 A I have not discussed specifically that data with Dr. Lees.
23 And I don't know that you are representing it exactly the way
24 he intended in his analysis. So I have relied on him for the
25 analysis.

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1 Q But your view would be that over time because the sprayers
2 and the helpers are in the same job category that their
3 exposures will converge to the average for that category.

4 A That's right.

5 Q Not necessarily to the average of the job they are doing?

6 MR. BERNICK: Objection to the form of the question.
7 Objection to the form of the question. The question is just
8 because they are in their jobs that they will converge --

9 MR. FINCH: Your Honor, I think Mr. Bernick's
10 objection to form is sufficient.

11 MR. BERNICK: No, to the contrary. We've now been
12 over this like -- this is Option B a question of whether the
13 question can be reformulated the ninth time in order to urge a
14 proposition on the witness that has already been answered eight
15 times. And that question talked about job categories. It
16 didn't talk about actual job experience.

17 THE COURT: I --

18 MR. MULLADY: That was the last question on the
19 subject, Your Honor. I'm ready to move on to another area.

20 THE COURT: We didn't get an answer first of all or a
21 ruling. First of all this witness doesn't need to be coached.
22 She's doing fine on her own.

23 MR. MULLADY: Totally agree.

24 THE COURT: Secondly, I don't think Mr. Bernick that
25 I always need a long explanation, but I occasionally do. But I

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1 think I can ask for it when I do so we can make objections and
2 state the specific of the objection and then if I need
3 argument, this applies to all of you, I'll ask for it so that
4 we don't have that problem.

5 With respect to this one, this objection, I don't
6 know if you are going to remember this question because frankly
7 I don't. But nonetheless the objection is overruled. I think
8 you can reask this question. I'm not sure you remember it, Dr.
9 Anderson. If you do, you can answer it.

10 A I don't think I know what the question is.

11 Q I think the question was simply assuming that I
12 represented the Lees data accurately, it would be your view
13 that the cumulative average exposures for the sprayers would
14 converge -- strike that. Assuming I've represented the Lees
15 data accurately, it would be your view that notwithstanding the
16 disparity in the TWA measurements between sprayers and helpers,
17 that over time the exposure of helpers and the exposures of
18 sprayers would both converge to the average for that group.

19 A Again, may I answer your question in three parts? One, I
20 do not think I should be asked to reevaluate Dr. Lees data.
21 One, I'm not an industrial hygienist. Two, he's presented his
22 data so I don't know why I should be asked to assume certain
23 things about it. And, three, I am very accustomed to seeing
24 highly, highly variable environmental data. Sometimes the data
25 can go from zero to very, very high values. So you see wide

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1 variations in data. The whole point is to have some
2 representative sites and you don't have to sample every
3 building or every situation that representative data to define
4 what is going on in that particular category.

5 Beyond that, I can not unravel Dr. Lees work. I
6 think he was here for you to ask him those questions. And I
7 have known him for many years. I have the highest regard for
8 his work. He is a very respected industrial hygienist and I
9 have the confidence to use his work.

10 Q Let me ask you about --

11 THE COURT: For the record, if I recall correctly it
12 was either Dr. Lees or Dr. Moolgavkar and I apologize offhand I
13 don't recall which who indicated specifically the variation
14 because it was not all three to six times. In some instances
15 it was two and two and a half times. That that was well within
16 the range of categorizing categories together for sprayers and
17 helpers. And that he himself did not think it inappropriate to
18 put those categories of sprayers and helpers together. So this
19 witness is quite correct that from her point of view that Dr.
20 Lees' on testimony was that from his point of view he had
21 appropriately characterized the evidence. So I just want the
22 record to reflect that the witness in that respect I don't
23 think was being asked to reevaluate Dr. Lees' data, but should
24 know that Dr. Lees' own view of his own analysis was different
25 from what is being represented. You can continue.

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1 Q Let's discuss whether in your view Dr. Lees gave you the
2 true average, the correct average to use for your work. Did
3 you check to see whether Dr. Lees calculated the standard error
4 for the averages he reported to you?

5 MR. BERNICK: I object to the prefatory statement.
6 Let's see if he did it the right way and then he went on to say
7 a standard deviation thereby assuming in his question that the
8 standard deviation was necessary in order to figure out whether
9 it was done the right way.

10 MR. MULLADY: Let me rephrase it.

11 THE COURT: All right.

12 Q Dr. Anderson, did you check to see whether Dr. Lees
13 calculated the standard error for the averages he reported to
14 you?

15 A No, I didn't.

16 Q Can we have ACC/FCR-307?

17 A And I should add that is not material to the way I would
18 use his data.

19 Q No, I didn't ask you that ma'am and I would move to strike
20 that statement.

21 THE COURT: No, I will not have it stricken because
22 Dr. Lees also testified that it would not be customary
23 depending on the use of the data to make that calculation.

24 Q Let's see 3007. This is the judicial reference manual on
25 scientific evidence. Are you familiar with that work?

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1 A What?

2 Q Are you familiar with the judicial reference manual on
3 scientific evidence?

4 MR. BERNICK: I would object to that question being
5 asked as a yes or no answer, but depending on what the answer
6 is.

7 A I'm not fully familiar with this document and I'm
8 certainly not going to comment on a sentence out of the middle.

9 Q It has the definition of standard error. Let me ask you,
10 without reference to this, what do you understand --

11 MR. BERNICK: Your Honor, can we take it off the
12 screen. There was a vigorous objection to my getting into
13 experts with experts, specifically Dr. Roberts that has
14 anything to do with the law and on voir dire, voir dire here I
15 guess, Mr. Mullady was at pains to point out that this witness
16 didn't have expertise in the law and in fact they've objected
17 with respect to all of our witnesses to commenting on that.

18 MR. MULLADY: It has nothing to do with the law, Your
19 Honor. I really think. If you could just relax and wait for
20 the questions, this would go a lot faster.

21 THE COURT: It probably would. You can ask the
22 witness what her understanding is.

23 Q What is your understanding of what standard error means?

24 THE COURT: If she has one.

25 MR. MULLADY: Well I'll ask a foundation question.

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1 Q You have some understanding of statistics and you apply
2 statistical principles in your work, correct?

3 A I use regularly outcomes of statistical analysis and I
4 have some familiarity with the statistical analysis. So I
5 don't know, what are you trying to ask me?

6 Q Well I'm asking you what your understanding of standard
7 error is. Are you familiar with that concept in statistics?

8 A Not specifically just standard error. I'm familiar with
9 at various times for various reasons needing to put confidence
10 and it rolls around let's say epidemiology outcomes.

11 Q Are you familiar with standard error being a tool that is
12 used for analyzing the reliability of an average?

13 A It depends on why you would do that. You wouldn't do that
14 for purposes that I use these data because of what I just
15 discussed. Using mean and variables cancel because of the long
16 term assumptions I'm making. So I would not have used any
17 information about ranges around these data sets because as I
18 say I've seen such broad, broad variability in environmental
19 data. It's routine that you do see very broad variation.

20 The question is when one uses it in risk assessment,
21 how do you account for it. And if it's a short term exposure
22 as I discussed before I do one thing. If it's a long term
23 exposure as I've done here, it's quite a different matter and
24 that's why the mean is very appropriate to long term exposure
25 risk assessment.

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1 Q I understand that's your opinion.

2 A It's not only my opinion. It is a documented method of
3 operation in the whole risk analysis world.

4 Q Would your opinion hold on, I think you said there
5 wouldn't be any reason to calculate standard error on the basis
6 of what Dr. Lees provided to you. Would you still hold that
7 view if I were to represent to you that Dr. Lees based his
8 Category E exposures for Vermiculite and Chrysotile products on
9 only five observations?

10 A I think these are questions for Dr. Lees. I've used his
11 analysis and he is the industrial hygienist. And I think he
12 had used the data that are available. I think he used all of
13 the data that are available. I think he qualified it before he
14 used it and I think his analysis are sound and I should ask to
15 channel your questions to him about his data sets.

16 MR. MULLADY: Just one more question and then Your
17 Honor, I will be ready to move to a different area, if the
18 Court would like to take your afternoon recess, we can do that.

19 Q Is it fair to say, ma'am, that because you didn't check to
20 see if Dr. Lees, Dr. Lees with an S, calculated the standard
21 error, you do not know whether the estimate of the average for
22 his Category E exposures has a large sampling error?

23 MR. BERNICK: Objection, lack of foundation.

24 THE COURT: No, O don't think so. Overruled.

25 A If you are talking about variability in his data, I have

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1 said that I have seen very large variability. It's routine in
2 environmental data sets. These are industrial hygiene data
3 taken specifically in at job sites and circumstances that are
4 mimicking these nature of exposure categories. There's going
5 to be some variation, I would expect it.

6 Q You -- excuse me, I'm sorry.

7 A But because of the long term assumption I've made and the
8 nature of the exposure category definitions and the fact that
9 I'm characterizing the exposure for those categories, not for
10 any individual who happened to be some odd outlier, but for the
11 category I would not have used any standard deviation
12 measurements. That's why they are not asked for in this kind
13 of analysis and not asked for in environmental risk assessment
14 when we're dealing with long term exposures.

15 Q You have done nothing to determine whether his Category E
16 exposures has a sampling error or doesn't. Is that fair?

17 MR. BERNICK: Done nothing independently of Dr. Lees?

18 MR. MULLADY: Yes.

19 A You think I should have independently have reevaluated his
20 data to see if he has a standard error in his data?

21 Q You are changing my question. All I asked you is did you
22 do any work to determine whether his exposures, his Category E
23 exposures, has a sampling error? Yes or no?

24 A I did not redo Dr. Lees' work, no.

25 Q You didn't redo his work is a little broader than what I

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1 asked you. I asked you if you performed any statistical
2 analysis to determine whether there is a sampling error in his
3 average for Category E? Did you do that?

4 A I have not redone his work. I've accepted his highest
5 mean concentrations. I think I've made that statement before.

6 MR. MULLADY: Thank you. Your Honor, I'm ready to
7 move to a different area. Would you like to take a break?

8 THE COURT: Yes, we'll take a ten minute recess.

9 MR. BERNICK: Can we have an estimate from counsel
10 for the ACC/FCR about how much longer they are going to do?

11 THE COURT: Yes.

12 MR. MULLADY: We can do that in about five minutes.

13 MR. BERNICK: Thank you.

14 (Recess)

15 THE COURT: Mr. Mullady.

16 MR. BERNICK: Do we have an estimate?

17 Q Dr. Anderson, the last question I asked you related to the
18 subject of --

19 A I have a loud breeze about me.

20 THE COURT: It's going off.

21 A Okay. I'm not hearing you very well.

22 Q I'll try to speak louder. Okay, I'm sorry. Just
23 continuing briefly on this issue of Category E and the
24 observations that Dr. Lees used that were reported up to you
25 for that category, I'll represent to you that he only had five

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1 observations and that these five observations were short term.
2 One hour, one day, in other words eight hour TWA averages on
3 the samples that he took.

4 Do you have an opinion that those five samples is
5 enough to give you an accurate average to use for your
6 analysis?

7 A Well there certainly can be. Evidently Dr. Lees who is
8 far more experienced in the meaning of industrial hygiene data
9 than I thought they were. Sometimes we don't even have that
10 many samples and it depends on the nature and quality of work
11 and I relied on him for those data that I subsequently used.

12 Q Isn't it true though that the only way to -- the way to
13 determine whether that is a proper sample or not is to conduct
14 a statistical sampling error analysis?

15 A No, that wouldn't tell me anything except you know the
16 variability of the data one way or the other. And I've already
17 said variability is dealt with by my assumption of 11,250 days
18 and that the reasons for the variability cancel out over time.
19 So that's why I didn't ask him for it and that's why I didn't
20 look to see if he did it because it doesn't matter. It doesn't
21 change the mean. It just means we're getting a statement of
22 deviation around the mean and it wouldn't change my work at
23 all.

24 Q I think we're talking about two different things and it's
25 probably my fault for not being clear. I'm not asking you

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1 about variability among the exposures that would then converge
2 to the average.

3 A I thought you were talking about the data.

4 Q I am talking about the data but I'm not talking about the
5 data in the sense of variability of data. I'm asking you about
6 whether the average that you were given to work with was the
7 proper average to use. In other words, was it derived through
8 a proper process of having enough samples so that statistically
9 the average isn't subject to a large sampling error? That's
10 what I'm asking you about?

11 A Did you ask Dr. Lees about this? This is really his area,
12 but as for my experience being the recipient of data for many
13 years we're trying to characterize in the case of the E,
14 someone who is in the space with activities going on where
15 asbestos is being used. It's being applied, it's being
16 installed or something is going on there. So within that space
17 we have information about someone who could be there passing
18 through, who could be there for a longer time.

19 We have assumed that that person is in that space as
20 a professional bystander. That someone is in that space for 45
21 years, 11,250 days in the year and I think that regardless of
22 the variability in the data and also regardless of -- well he
23 qualified the data he had. You seem to be saying that you
24 don't agree that he qualified it correctly or you don't think
25 he had enough samples. But these are the data. These are

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1 historic data and it's his purview to characterize this
2 information and he thought that his data were perfectly usable.
3 I think you have to discuss it with him.

4 Q Well we tried to get into that with him a little bit. I
5 think there was an objection and we were directed to discuss
6 some of this with you. But leaving that aside.

7 MR. BERNICK: Move to strike the statement.

8 MR. MULLADY: I think Mr. Rasmussen, my partner, asked
9 some questions of Dr. Lees about this and was, an objection was
10 raised.

11 MR. BERNICK: I do agree --

12 THE COURT: This is not the area I believe that was
13 inquired of Dr. Lees and in which the objection was sustained.
14 I don't believe that is the case.

15 MR. BERNICK: In any event, Your Honor, whether it
16 happened it is not an appropriate subject for commentary by
17 counsel.

18 THE COURT: Well that's true too. And I believe that
19 the issue was her use of the data that was going to be inquired
20 of this witness, not how Dr. Lees characterized the data.

21 Q Let me just try this, Dr. Anderson, how this relates to
22 your work is as follows. Would you agree with me if
23 hypothetically five samples for Category E was too few a number
24 of samples to derive the true average of the exposures
25 cumulatively for workers in that category because that was

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1 subject to a large sampling error statistically, isn't it true
2 that that would compromise the scientific reliability of the
3 average that you've used for Category E for purposes of your
4 analysis?

5 MR. BERNICK: Objection to the form of the question.

6 MR. MULLADY: We have the objection.

7 MR. BERNICK: Objection to the form of the question.

8 What does true average mean? Is that a statistical term? Is
9 it a scientific term? Can we clarify what that question means?

10 MR. MULLADY: The proper average, the correct average
11 to use.

12 MR. BERNICK: For what? Again this is a setup for
13 somebody else to come in and talk about true average and I
14 think you ought to ask the witness a fair and open question so
15 that she understands what it is that he's getting at.

16 THE COURT: I don't know what true average means. I
17 just don't know what that means.

18 MR. MULLADY: I'll try the question again.

19 Q I want you to assume hypothetically Dr. Anderson that Dr.
20 Lees use of five samples for Category E subjected those samples
21 to a large sampling error. Do you agree that if those -- if
22 that average drawn from a sample set with a large sampling
23 error is not a proper average to use, that that affects your
24 use of that average for purposes of ruling claims as either
25 meritorious or not?

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1 MR. BERNICK: I think if you are going to ask that
2 there is a lack of foundation. We now have this characterized
3 as a sampling issue. If this witness agrees that this should
4 have been a sampling effort, I think that's an appropriate
5 question.

6 MR. MULLADY: That's what this has been about for the
7 last 30 minutes.

8 MR. BERNICK: No, sorry. You've assumed in your
9 questions because you have another expert that this is a
10 sampling issue, that there was an effort to sample and
11 presumably come up with some representative number. You
12 haven't established to this witness has anything to do with her
13 understanding of how this should be done. So I think that
14 there's a lack of foundation for that question.

15 Q You accepted Dr. Lees average for Category E that he gave
16 you, correct?

17 A That's correct.

18 Q But you didn't test to see whether it was subject to a
19 sampling error, correct?

20 A No, I didn't test any of his data to see if it was subject
21 to a sampling error.

22 Q If it was subject to a sampling error, it was the wrong
23 average to have given you, wasn't it?

24 MR. BERNICK: Objection to the form of the question
25 and foundation.

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1 A I think that there is a basic flaw in what you are asking.
2 And that flaw is you want me to assume something detrimental to
3 Dr. Lees when he's not here to answer the question about his
4 data, when he's not here to answer that question either. And
5 about the number of samples. Well it depends very much on how
6 the samples are taken, where they are taken, and how
7 representative they are.

8 I was not the one who made those judgments. Those
9 are Dr. Lees' judgments. If I were to go back and sit with
10 him, you know, that would be a different matter. If he had
11 thought that he didn't have representative data, that it was
12 not useful, I don't think he would have given it to me.

13 And the second thing is that the data are what they
14 are. We have these data for products to evaluate and sometimes
15 we don't have the luxury of going back and collecting
16 additional data. So these are the data we have. He thought
17 that they were perfectly good data for this purpose. He did
18 his analysis and he gave them to me. I do not think it's
19 within my domain to go back and reanalyze his data. And I
20 don't think that I am comfortable answering hypothetical
21 questions about his data.

22 Q If the mean that he gave you for Category E has a large
23 error, then using that mean could result in erroneous analysis
24 by you, correct?

25 A I have no reason to think that his data had a large error.

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1 Q But if they did, that could result in erroneous analysis
2 by you, correct?

3 MR. BERNICK: Objection to the form of the question
4 and lacks foundation.

5 THE COURT: This is a hypothetical question and I
6 believe the witness has said she has no basis on which to
7 assume that there is any such error. But she is an expert and
8 she is -- it is proper to ask her a hypothetical question. If
9 you will lay the assumptions on which you want her to answer
10 your hypothetical question, and do it properly so that we can
11 get through it without any objections, she will answer your
12 question.

13 MR. MULLADY: I thought I did that but I'll try
14 again.

15 Q The average that Dr. Lees reported to you has a large
16 sampling error and using that average could result in erroneous
17 analysis by you for the Category E claimants?

18 A Let me answer this way. In any risk analysis work if the
19 underlying data have serious flaws then they will be reflected
20 in the next step in the analysis. I have no reason to think
21 that Dr. Lees data had any such flaw.

22 Q Thank you. I want to ask you now about PCM and PCME.
23 You, as I understand it, do not use the PCM measurements from
24 Dr. Lees report as your exposure levels for the Grace
25 claimants, correct?

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1 A That's correct. That has been traditional in all of the
2 EPA risk assessments that are done.

3 Q You instead use conversions of those measurements into
4 what Dr. Lees calls PCM equivalents or PCME, correct?

5 A Yes. And that's proper and it's stated in the EPA IRIS
6 file that if you are going to deal with the dose response
7 information that's supplied in that file that the proper
8 attention should be given to the representativeness of PCM
9 measurements when they are taken in environmental situations.

10 Q The PCM measurements are reductions of the fiber counts
11 observed through PCM which is phase contrast microscopy to
12 eliminate from the fiber counts the fibers that are not
13 asbestos, right?

14 A It's routine in environmental -- when samples are taken in
15 environmental circumstances. I can explain this to you.
16 Because PCM measures all the fibers whether they are asbestos
17 or not. When the original epidemiology studies were done in
18 the asbestos rich environments where production was going on
19 with asbestos products, it is though that the PCM measurements
20 that metric and those environments were predominantly asbestos.

21 We now know when we move to environmental
22 environments we get varying levels of asbestos but PCM sees all
23 of the fibers in those environments. And the only way to make
24 the adjustment and to use EPA's work is to compare apples and
25 apples. So the PCM values need to be adjusted and the way they

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1 are adjusted is to use TEM to see how many of those fibers are
2 asbestos and how many are not for a particular circumstance,
3 and then do some conversion.

4 Q Okay.

5 A That's typical of what is done.

6 Q I think you told us on direct that it's your view that
7 EPA's integrated risk information system which goes by the
8 acronym IRIS requires a conversion from PCM to PCME.

9 A And I said it says to use with caution PCM data when it's
10 collected in an environmental circumstance.

11 Q Can we have 3019 please?

12 A And I know this language, I wrote it. I had a large part
13 in dealing with this and I did asbestos risk assessments for
14 years and one has to make these conversions. And the work that
15 was commissioned by EPA, the Berman & Krump report they
16 emphasize the importance of these. This is just routine. It's
17 very simplistic.

18 Q Let's look at some of your language from the IRIS report.

19 A It says use with caution.

20 MR. BERNICK: Do we have that document?

21 MR. MULLADY: 3019, you should.

22 MR. BERNICK: We have 3018.

23 MR. MULLADY: Sorry.

24 Q Let's go to Page 6.

25 A What are we looking at?

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1 Q We're at Page 6 of the IRIS report, Roman II, Letter C,
2 Paragraph 3. Risks have been calculated for males and females
3 according to smoking habits for a variety of exposure
4 scenarios. The unit risk value is calculated for the additive
5 combined risk of lung cancer and mesothelioma and is calculated
6 as a composite value for males and females. We're skipping
7 down.

8 I meant to read the second paragraph here where it is
9 talking about the unit risk and how it's measured. "The unit
10 risk is based on fiber counts made by phase contrast microscopy
11 PCM and should not be applied directly to measurements made by
12 other analytical techniques. The unit risk uses PCM fibers
13 because the measurements made in the occupational environment
14 uses this method."

15 A That's what I just said.

16 Q Okay. And it also says at the top of Page 7, "Likewise
17 the correlation between PCM fiber counts and TEM fiber counts
18 is very uncertain and no generally applicable conversion factor
19 exists for these two measurements." Do you agree with that
20 statement?

21 A That's correct and that's why you need to do it for each
22 environmental circumstance to get an appropriate conversion for
23 that circumstance if possible.

24 Q Let's look at 3020, the Berman & Krump article that you
25 referenced a moment ago. The final draft of the EPA paper.

Anderson - Cross/Mullady

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PP
Chr

1 Let's go to Page 5.2 at the bottom under the heading, human
2 epidemiological studies.

3 THE COURT: What's the exhibit please?

4 MR. MULLADY: FCC/FCR-3020.

5 Q You cited this paper I think in your report, Doctor,
6 correct?

7 A I don't recall whether it's cited in this report or not.
8 I can look.

9 Q That's okay. I just want to read you some language from
10 this.

11 A I have cited this work.

12 Q Right.

13 MR. BERNICK: What page are we on?

14 MR. MULLADY: 5.2.

15 Q It says impinger measurements are sometimes related to
16 fiber counts based on PCM using side by side measurements of
17 total dust and fiber counts collected during a relatively brief
18 period of time. There's a citation to the Dement article from
19 1983 and McDonald.

20 However, the correlation between fiber counts and
21 total dust is sometimes poor within a plant, i.e. a single
22 study environment.

23 A I'm sorry, where are you reading?

24 Q We have it on the screen. It's highlighted at the bottom
25 here.

Anderson - Cross/Mullady

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PP
Chr

1 A Oh, I don't have it on my screen.

2 Q Your screen doesn't have what's on this screen?

3 THE COURT: It does. Where the yellow is
4 highlighted.

5 A Where are you? What you just read that in continued.

6 Q I'll start again. I'm just reading the highlighted
7 language on the screen. "However the correlation between fiber
8 counts and total dust is sometimes poor within a plant, i.e. a
9 single study environment and generally poor between plants.
10 See for example U.S. EPA 1986. Thus, conversions based on
11 limited sets of -- limited sets of paired measurements are of
12 questionable validity." Do you agree with that statement?

13 A Well I think we have to see what they are talking about.
14 They tell you dust, they could be talking about asbestos by
15 weight and I don't know.

16 Q Well isn't it true that OSHA regulations require
17 analytical laboratories to use PCM or an equivalent method for
18 collecting and analyzing fiber samples?

19 A Yes and they go on to make provisions for making the
20 conversion when appropriate using, I think it's method 7204 for
21 TEM measurements to adjust PCM to PCME. I've given you the
22 logic. Sometimes you can only understand things if you -- if
23 you understand the logic behind them. PCM was the method that
24 was available in these old epidemiology studies. So it was the
25 metric that was used in the dose response work in the 1986 EPA

Anderson - Cross/Mullady

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PP
Ct

1 risk assessment.

2 When we move beyond those times when PCM was used and
3 we start to use TEM we find that when we get in these mixed
4 environmental environments we can be measuring on no asbestos.
5 We can be measuring one percent. So you have to make some
6 adjustments and you have to make -- there has to be some
7 judgment about those environments and that's why the IRIS file
8 says use with caution. But if you are in certain environments,
9 you need to at least test your data to see if you are measuring
10 predominantly asbestos or something else. If you are going to
11 use the data quite seriously in an analysis like this, it's
12 absolutely essential to make the conversion because otherwise
13 you don't know what you are counting.

14 Q But if the measurements or the conversions are based on
15 limited samples of paired measurements such as between plants,
16 they are of questionable validity?

17 A Well this is --

18 MR. BERNICK: Objection.

19 A -- between plants and total dust and I'm not sure but this
20 could be talking about mass weight rather than particles on
21 you've given me this one excerpt. I suspect that is what they
22 are talking about. Also PCM between plants, they could be
23 talking about just variable measurements between plants which
24 would not be surprising which is an entirely different topic.
25 Would you expect the same PCM measurements in one facility